

Air Cleaning Filters and Inhalant Allergy

SINCE THE DISCOVERY that the inhalation of airborne particles is responsible for certain respiratory diseases, efforts have been directed toward removing or blocking these particles from the air breathed by susceptible persons. Highly effective filtering devices are available. They are known as electrostatic precipitators or high efficiency particulate air (HEPA) filters, and they can remove particles under one micron (μ) in diameter from the air entering the filters. Thus, pollen grains (15 to 30 or more μ), mold spores (2 to 50 or more μ), and probably dust and most animal danders can be readily blocked by such filters.

They are used most efficiently in clinical situations by incorporation into adequately designed central air conditioning units. The residence or place of work can then be kept closed in extremes of temperature. Additional helpful measures include the use of odor adsorbents (activated charcoal) and humidifiers.

Portable units for individual rooms have not been proved to be clinically effective.

All filtering devices have these inherent disadvantages when employed as therapeutic devices:

- They cannot magically remove all particles from the air.
- They can filter only the air that is presented to them.

Clinical improvement may be only partial even with the employment of the best units under optimal conditions. There is evidence, however, that the longer the patient can remain in a filtered environment, the less he suffers from his inhalant caused allergic reaction.

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Allergy and Serous Otitis Media

SEROUS OTITIS MEDIA associated with allergic rhinitis is a common cause of decreased hearing in children. The basic defect in this disorder is obstruction of the eustachian tube and accumulation of serous fluid or mucus in the middle ear. When air is prevented from reaching the middle ear, there is impairment of function of the tympanic membrane with conductive hearing loss.

Earache may be present along with a feeling of fullness in the head. Occasionally there is sudden onset of hearing loss and no complaint of pain or discomfort. The first sign may be inattentiveness in school or failure to pass a routine hearing test.

While no single cause can be implicated for all cases of serous otitis media, a large number of children will have nasal eosinophilia, a positive family history of allergy, positive skin tests for sensitivity, allergic rhinitis, or some other symptoms of the atopic allergic state.

Long term management requires proper diagnosis and treatment of any underlying allergic state. An allergy investigation may be of great value. No single method of treatment is always effective. Oral decongestants and antihistamines, environmental control with removal of house dust and animal danders, hypoallergenic diets with removal of specific food allergens, and desensitization to clinically indicated dusts, pollens, and molds may all be of value in therapy.

For the more intractable cases non-responsive to thorough allergic management, surgical intervention including the removal of obstructing adenoid tissue may be indicated. Whatever the cause of the problem, bilateral myringotomy with insertion of polyethylene tubes often produces an immediate dramatic improvement in hearing.

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